INCH-POUND

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SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, KLYSTRON
TYPE 2K48

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the electron tube described herein shall consist of this document and the latest issue of MIL-PRF-1.

DESCRIPTION: Reflex, external cavity.

ABSOLUTE RATINGS:

Parameter:	Ef	Cavity voltage	Ik	Er	T	Alt
Unit:	V	V dc	mA dc	V dc	°C	ft
Maximum:	6.6	1,500	15	-400	120	50,000
Minimum:	6.0	- - -	- - -	-18	- - -	- - -

PHYSICAL CHARACTERISTICS:

See figure 1.

Mounting position: Any.

TEST CONDITIONS:

Parameter:	Ef	Cavity voltage	Er
Unit:	V	V dc	V dc
	6.3	1,250	Adjust

GENERAL:

Qualification - Required.

TABLE I. Testing and inspection.

Inspection	Method	Notes	Conditions	Symbol	Limits Min	Limits Max	Unit
Qualification inspection							
Nonoperation vibration	1031	2	10 G	- - -	- - -	- - -	- - -
Conformance inspection, part 1		8					
Heater current	4289	-		If	0.45	0.70	A
Total reflector current	4229	5	Er = -400 V dc; t = 30 seconds	Ir		10	µA
Voltage breakdown	- - -	3		- - -	- - -	- - -	- - -
Electrode current (cathode)	1256	-	Er = -350 V dc	Ik	8	15	mA dc
Power output (1)	4250	4	Cavity I: Er = -20 to -50 V dc; F = 4,300 to 4,450 MHz	Po	5	- - -	mW
			Cavity II: Er = -65 to -110 V dc; F = 6,900 to 7,200 MHz	Po	5	- - -	mW
Power output (2)	4250	4	Cavity II: Er = -175 to -235 V dc; F = 6,900 to 7,200 MHz	Po	20	- - -	mW
Power output (3)	4250	4	Cavity III: Er = -240 to -300 V dc; F = 10,550 to 10,850 MHz	Po	20	- - -	mW
Cathode emission	4214	7	Ef = 5.7 V	ΔPo/Po	- - -	15	%
Conformance inspection, part 2							
Low-frequency vibration	1031	2	2.5 G	- - -	- - -	- - -	- - -
Bump	1036	1	Angle = 25°	- - -	- - -	- - -	- - -
High-altitude voltage breakdown	- - -	6		Δlk	- - -	5	µA
Conformance inspection, part 3							
Life test	- - -		Group C	t	250	- - -	hrs
Life-test end points:	- - -						
Power output (3)	4250	4		Po	10	- - -	mW

See notes at end of Table I.

TABLE I. Testing and inspection - Continued.

NOTES:

1. The tube shall be suspended by a yoke clamped to the cavity center conductor centered at a point 2.375 (60.33 mm) inches from the end of the center conductor. The weight of the yoke shall be 0.25 pound (113.4 g) and the portion of the yoke against which the hammer strikes shall have a spherical radius 1 (25.4 mm) inch.

2. The tube shall be within the limits of all power output tests after vibration.

3. A 25,000-ohm resistor shall be placed in series with the repeller lead and 4,000 peak ac volts shall be applied between the cavity center conductor and the repeller lead. No breakdown as indicated on a high-resistance ac voltmeter in parallel with the tube shall occur.

4. Each tube shall be tested to assure satisfactory operation under the following conditions:

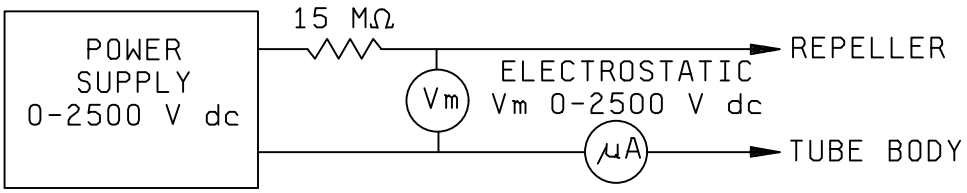
   Cavity I, II, and III, in accordance with Drawing 181-JAN.

   The power output shall maximize between the specified repeller voltage limits and shall be above the limits specified.

   The tube shall deliver power over a repeller voltage range of ±10 V. The tube shall be assumed satisfactory without a test at ±10 V from a maximum power repeller voltage between -30 V and 0 V.

5. A 15-megohm resistor shall be placed in series with the repeller lead.

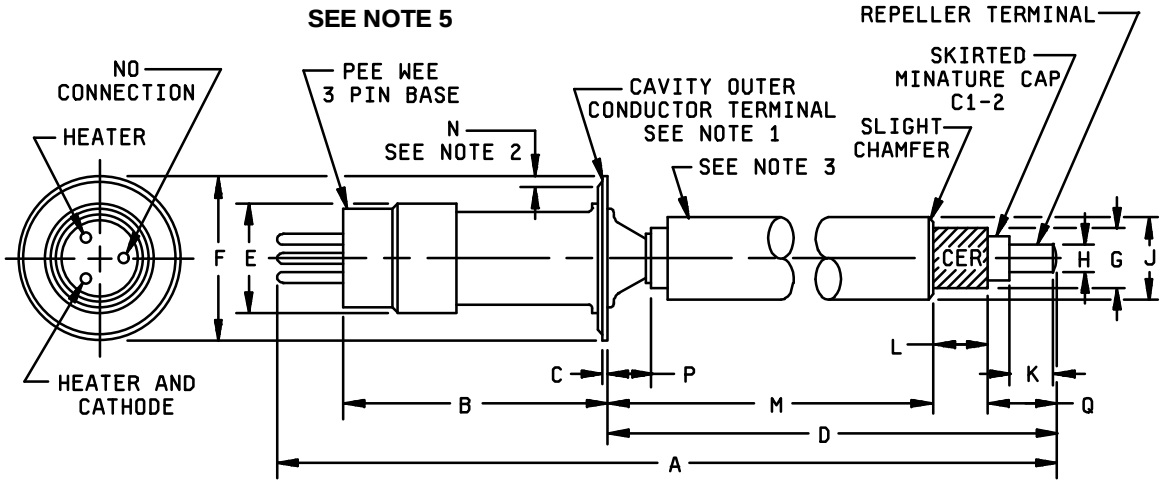
6. Apply 2,000 V dc through a 15-megohm protective resistor in series with a 50 μA full scale meter shunted by a momentary push button switch, as shown in circuit diagram below.



   Current shall be read with tube at standard atmospheric pressure. The same measurement shall then be made at a pressure of 81.28 mm of mercury, care being taken not to depress the shorting button across the microammeter if any initial deflection exists. The increase in current shall not exceed 5 μA over that read at atmospheric pressure, 1 minute after application of full voltage.

7. Power output (1), test cavity I, limits shall be used.

8. The Acceptance Level for the combined defectives in conformance inspection, part 1, shall be 1.0, inspection level II.

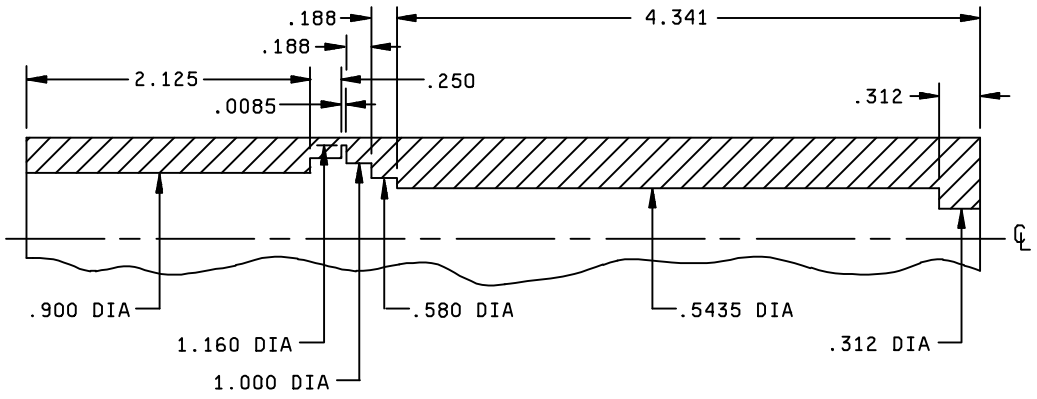


Dimensions in inches with metric equivalents (mm) in parentheses				
Ltr	Minimum		Maximum	
Conformance inspection, part 1 (See Table 1, note 8)				
	Inch	Millimeter	Inch	Millimeter
C	.005	(0.13)	.008	(0.20)
F	1.125	(28.58)	1.145	(29.08)
J	.538	(13.67)	.543	(13.79)
N	.065	(1.65)		
Conformance inspection, part 2				
A			7.38	(187.45)
B	1.56	(39.62)	1.94	(49.28)
D	4.88	(123.95)	5.00	(127.00)
M	4.06	(103.12)	4.16	(105.66)
P	.25	(6.35)	.34	(8.64)
Conformance inspection, part 3				
E			.735	(18.67)
H	.245	(6.22)	.255	(6.48)
Reference dimensions				
G	.450 (11.43)			
K	.281 (7.14)			
L	.380 (9.65)			
Q	.406 (10.31)			

NOTES:

1. Shall be gold plated min 10 MSI or silver plated 15 MSI external surfaces.
2. Contact portion of disc measured radially which must be free from splits or tears, must be smooth and flat.
3. Plate cavity center conductor gold 10 MSI or 15 MSI.
4. The tube shall be capable of being inserted in concentric cylinder (see figure 2) without binding (equivalent gauging method may be used).
5. Pee Wee 3 Pin Base (A3-108 or equivalent).

FIGURE 1. Outline drawing of electron tube type 2K48.



1/4 SECTION OF TEST CYLINDER

Inches	mm
.0085	0.22
.188	4.78
.250	6.35
.312	7.92
.5435	13.80
.580	14.73
.900	22.86
1.000	25.40
1.160	29.46
2.125	53.98
4.341	110.26

FIGURE 2. Test cylinder.

Custodians:
Army - CR
Navy - EC
Air Force - 85

Review activities:
Navy - AS, CG, MC, OS
Air Force - 17, 19, 99

Preparing activity:
DLA - CC

(Project 5960-3462)